

# INTERACTIVE SESSION I: GENERAL PRESENTATION OF THE SOTERIA PLATFORM

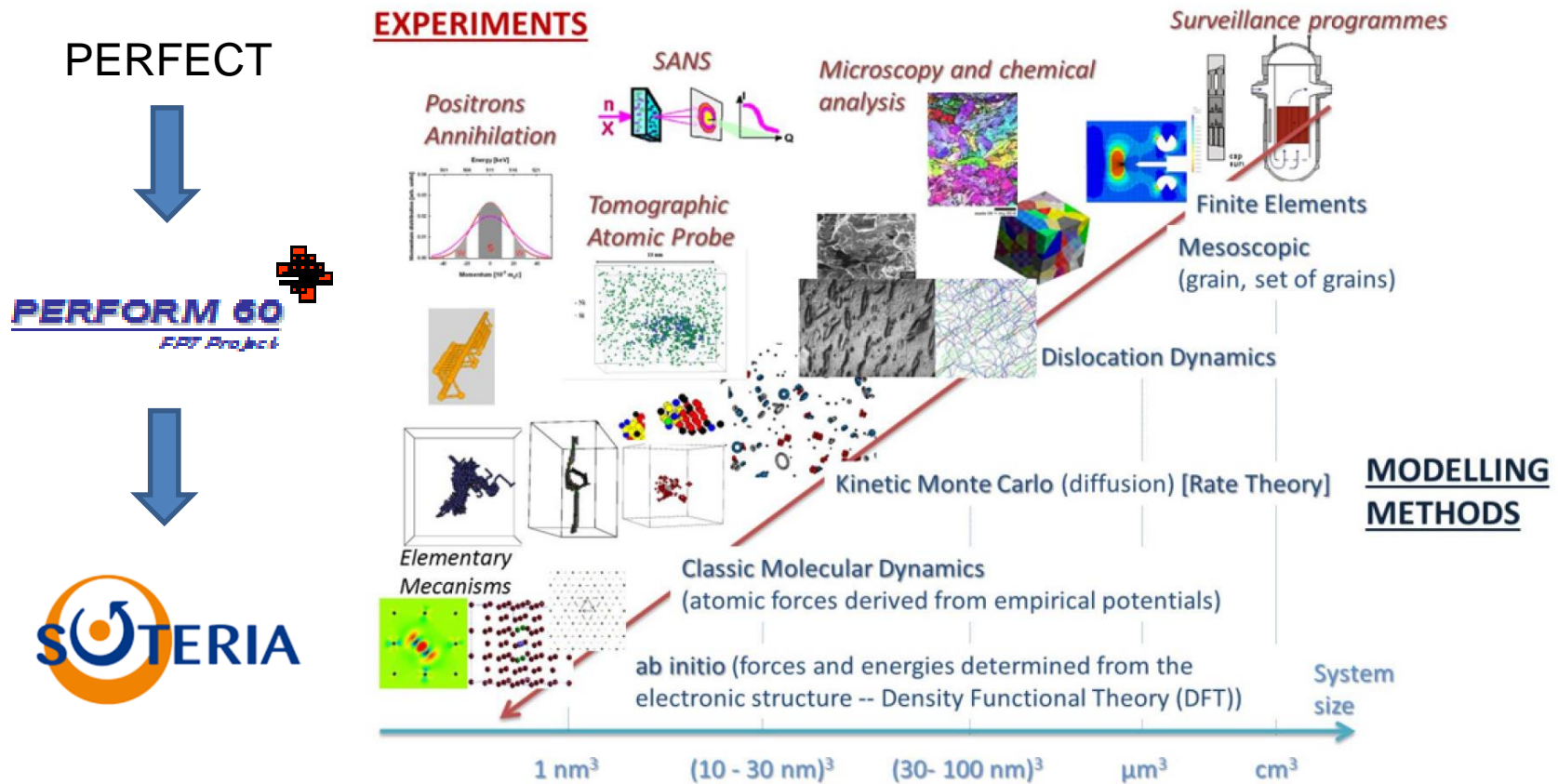
J. Vidal (EDF R&D)



# General philosophy of the platform



SOTERIA platform follows a multi-scale modelling approach with the aim to model the effect of irradiation on RPV and Internal material starting from nanofeature models up to mechanical models



# How to launch and use the platform



- ❑ For **beginners**: use of a clickable pdf file (Please use the pdf viewer *xpdf* to open the file) *SOTERIA\_Beamer.pdf*. Several study cases (Perfect study) are presented and can be launched automatically by clicking

Command : `source env_perfect.sh`

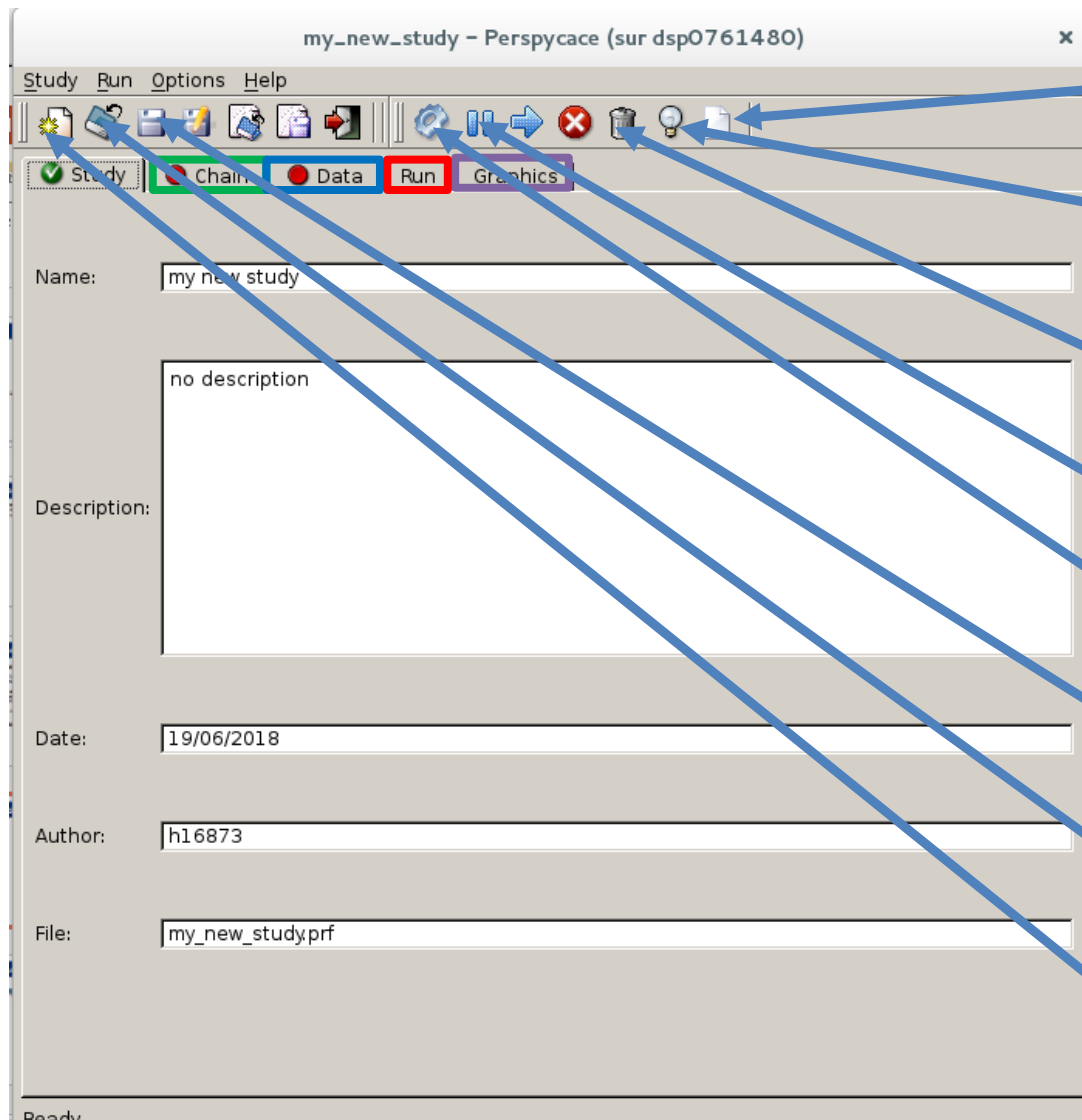
To launch the platform, go to slide 98 and click SOTERIA logo



- ❑ For **basic users**: launch the platform directly through the commands « `source env_perfect.sh` » + « `python Perspycace/pyqt/perspycace_gui.py` »
- ❑ For **experienced users**: create your own study and possibility to generate python scripts from the SOTERIA platform to be embedded in an in-house code. Click on the Study>Export to> menu to generate a \*.py file of the study.



# Graphical interface



LateX report of the study

Access to basic output of the modelling

Clean the study

Pause the study

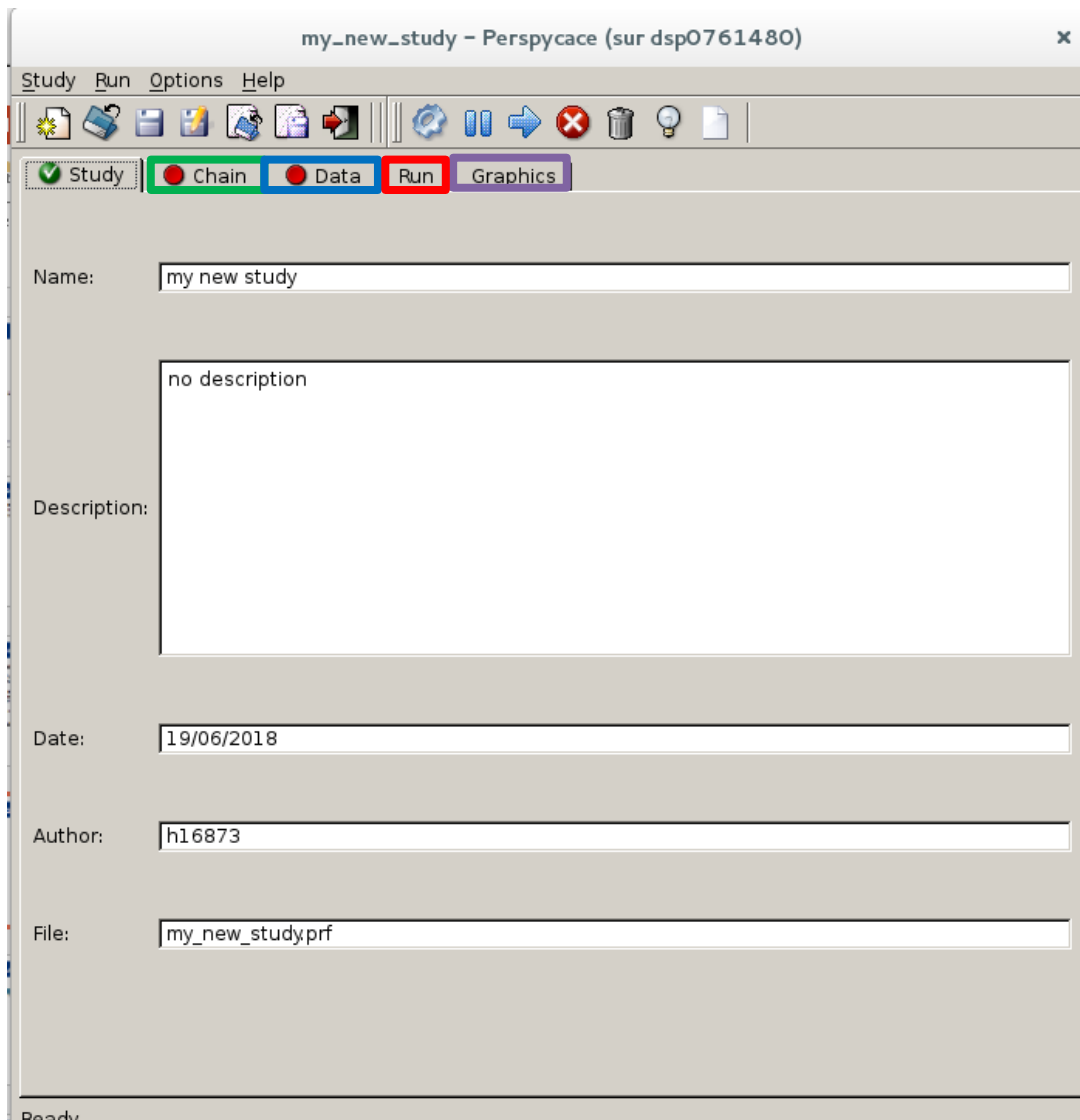
Run the study

Save a Perfect study \*.prf

Open a Perfect study \*.prf

Create a new Perfect study \*.prf

# Graphical interface



**Chain tab:** select the different modelling module and submodule and to link them

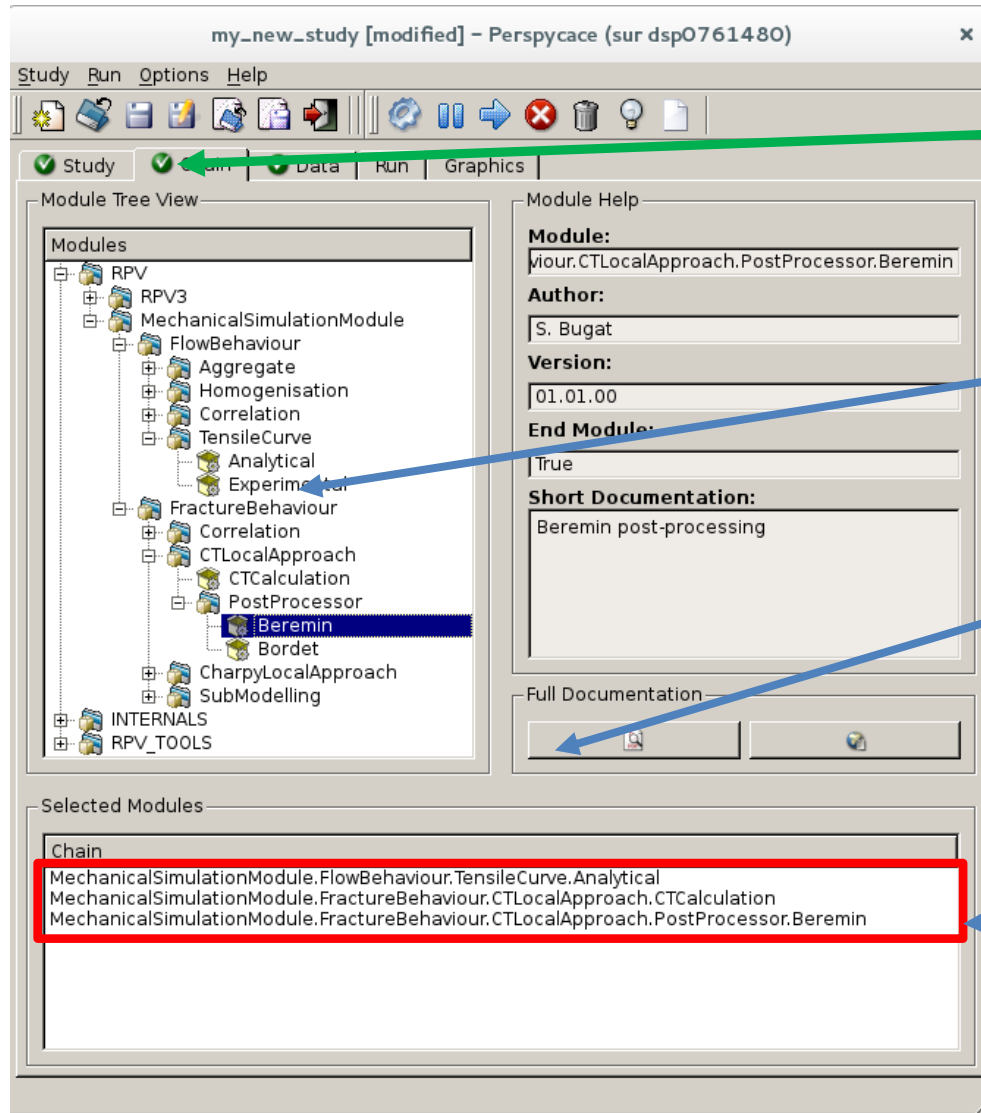
**Data tab:** modify the input data

**Run tab:** display the output of the different codes

**Graphics tab:** represent the different outcomes of the simulation



# How to set up a study



Indicative of the correct setting up of the study

Double click on the module to load it on the chain

For each submodule, documentation is available

The chaining of the submodules must be done in the proper order

# The data section: input and output



The screenshot shows the SOTERIA software interface. The 'Data Tree View' on the left lists various objects and their values. The 'Value' section on the right displays a table of output data.

Object	Value	Units
Analytical		
Yield_stress		
n	1.2	
A_Rp02	430	MPa
temperature	-120	°C
CTCalculation		
ct_calculation		
ct_geometry		
ct_loading		
Beremin		
beremin		
V0	0.000125	nm <sup>3</sup>
quantile		
m	20	
sigma_u	2647	MPa
beremin_calculation		
OUTPUT_DATA		
failure_curve		
Toughness_quantile		
curve		
elasticity		
ct_geometry		
Width	0.05	m
result_file		
tensile_curve		
Elasticity		
mu	70	GPa
young	2.119e+05	MPa
poisson	0.3	
alpha	0	K
tensile_curve		
loading_curve		

#	[EPS]	[SIG]
#	( )	(MPa)
0.	00320504856698	679.008769205
0.	013205048567	717.480384842
0.	023205048567	752.181938894
0.	033205048567	783.567377828

Indicative of the correct setting of the data

Data can be imported from file

Data can be exported to file

Data can be represented as graphics quickly

Output section: list of the output data of the modelling

